



Steam-Powered BoilerBot

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TOOLS:

- [#0 or #00 Philips Screwdriver \(1\)](#)
- [Drill, or drill press \(1\)](#)
- [Electric or Hand Saw \(1\)](#)
- [Needle Nose Pliers \(1\)](#)
- [Sandpaper, 100 grit \(1\)](#)
- [Small Flathead Screwdriver \(1\)](#)



PARTS:

- [Jensen #85 Steam Engine \(1\)](#)
- [Hexamine solid fuel tablets \(1\)](#)
Esbit 20 x 4g box
- [Distilled water \(1\)](#)
- [wire brush, wood handled \(2\)](#)
- [Wood screws, size #6×1/4" or similar \(1\)](#)
- [Brackets \(1\)](#)
- [screws and bolts \(1\)](#)

SUMMARY

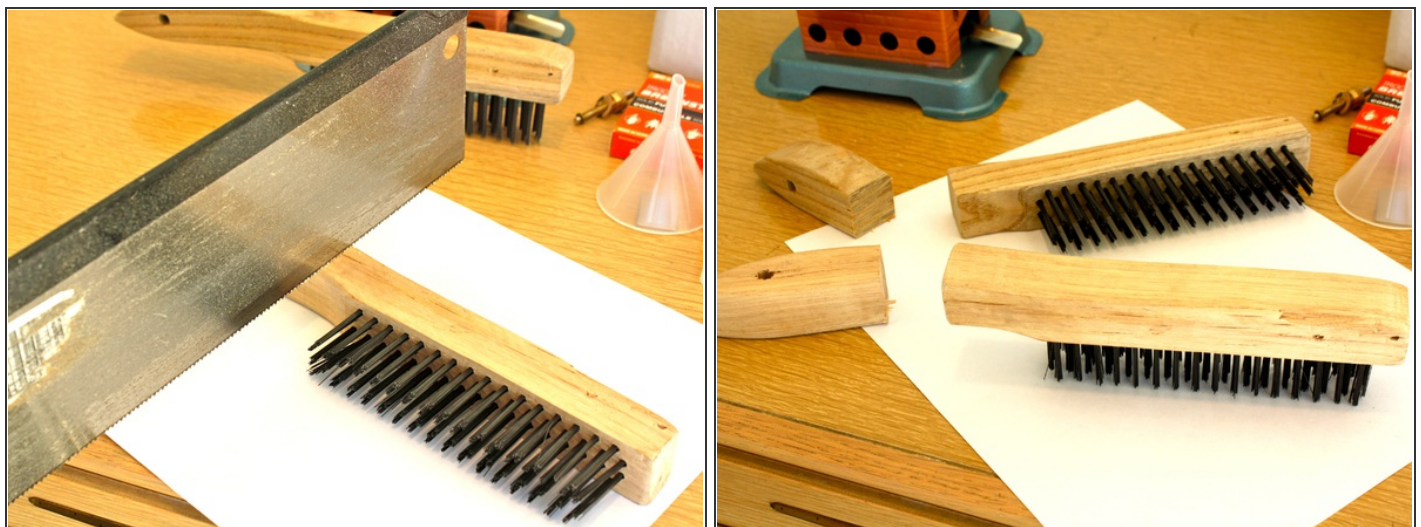
You may be familiar with the battery-powered, pager motor-driven, toothbrush head [bristle bot](#). This project turns that modern classic into a retro-fantastic, Steampunk delight by replacing the battery with a fire stoked steam boiler, the pager motor with a single-action, oscillating piston steam engine, and the toothbrush head with a pair of wire brushes!

Step 1 — Steam-Powered BoilerBot



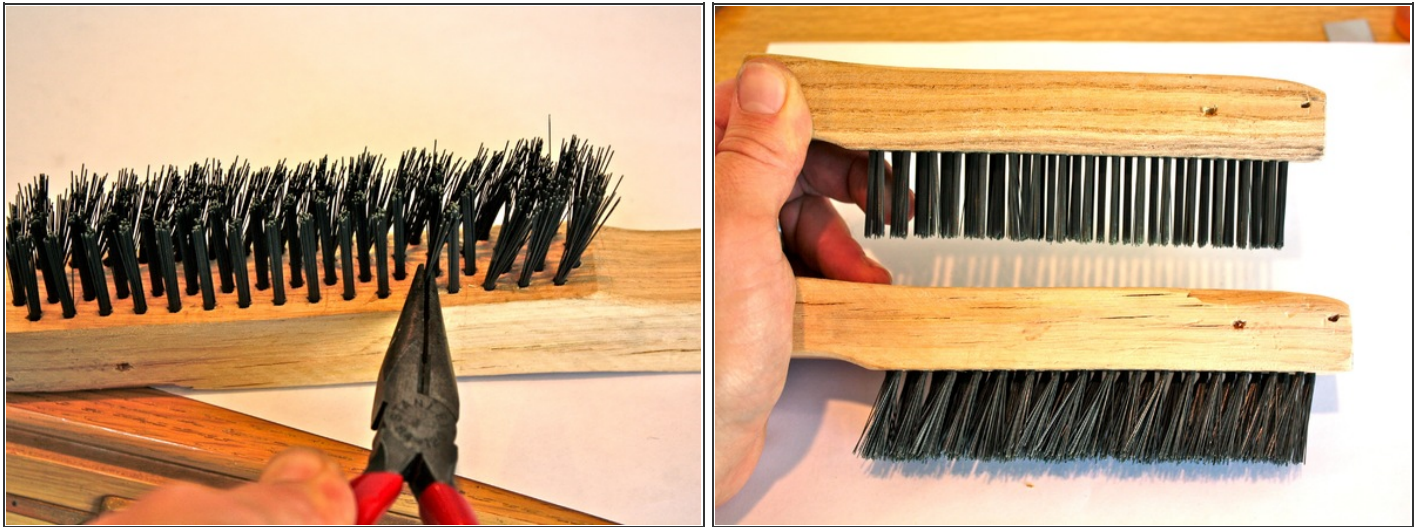
- Familiarize yourself with the operation and maintenance of the steam engine.
- Follow the instructions and do a test run of the engine.
- It's a good idea to periodically oil the piston and other moving parts, and to tighten any screws that have loosened.

Step 2



- Saw the excess handle lengths off of both wire brushes, so that the steam engine can still fit on top of them without overhanging.
- Use the sandpaper to sand down and smooth the wood.

Step 3



- Using the needle-nose pliers, grip each clump of wire bristles at the base and bend them back about 3 degrees.
- This is to provide the bot with a tendency to move forward when bounced up and down by the engine vibrations.
- Repeat for the second brush.

Step 4



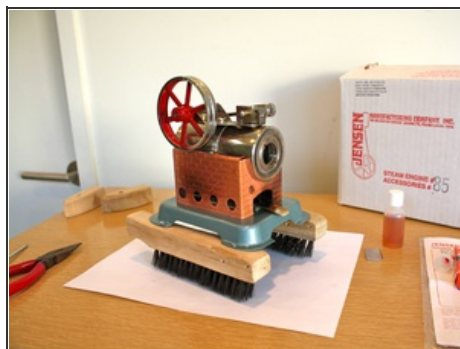
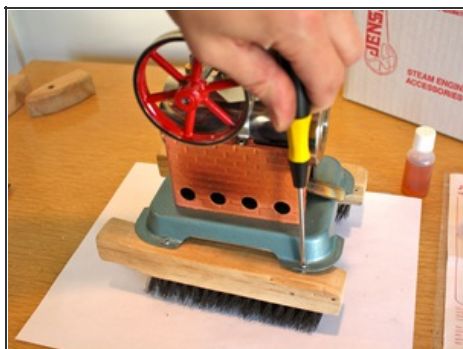
- Drill four small holes through the base of the steam engine. These will be used to fasten the engine to the wire brushes using the wood screws.

Step 5



- Place the wire brushes upright on their bristles. Space them approximately 3" apart, being careful to align them and keep them parallel.
- Set the boiler on top of the brushes, with the boiler window port facing (relative to the bent bristle angle).
- Carefully mark the wood through each of the four holes you drilled into the steam engine base. Drill small pilot holes in the wood at each of the four marks.

Step 6



- Screw the four wood screws through the steam engine base into the brushes, thus affixing the engine to its "treads."

Step 7



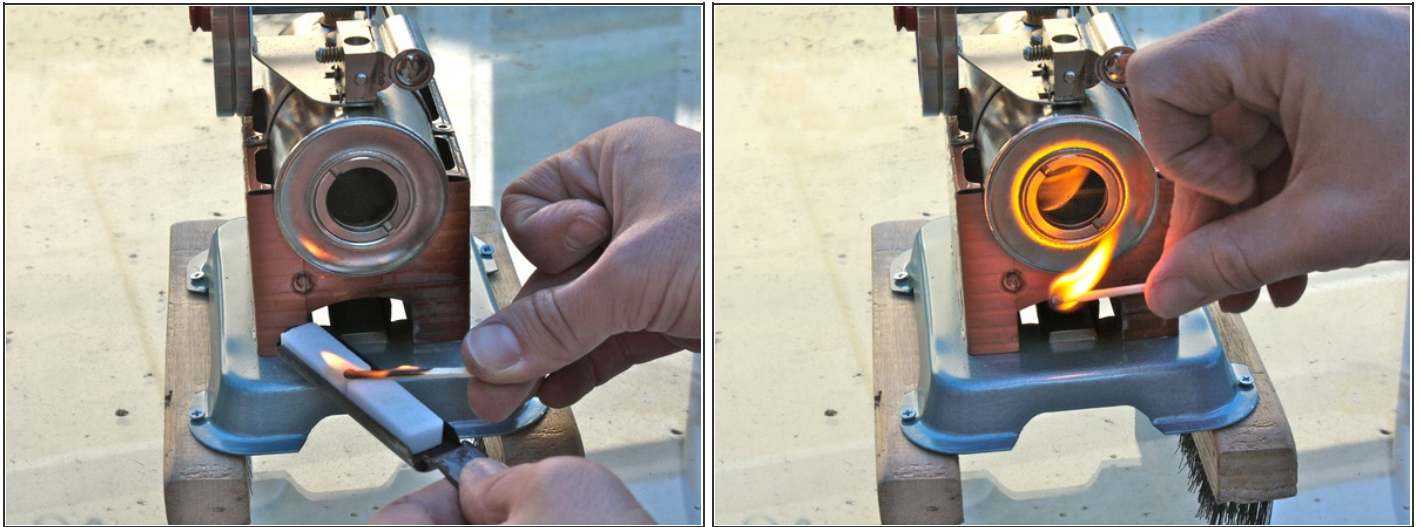
- Using small bits of hardware, such as a pair of brackets and a few screws, washers, and nuts, attach an offset weight to one spoke of the steam engine's flywheel.
- It does not need to be very heavy, just enough to create additional vibration when the engine runs.

Step 8



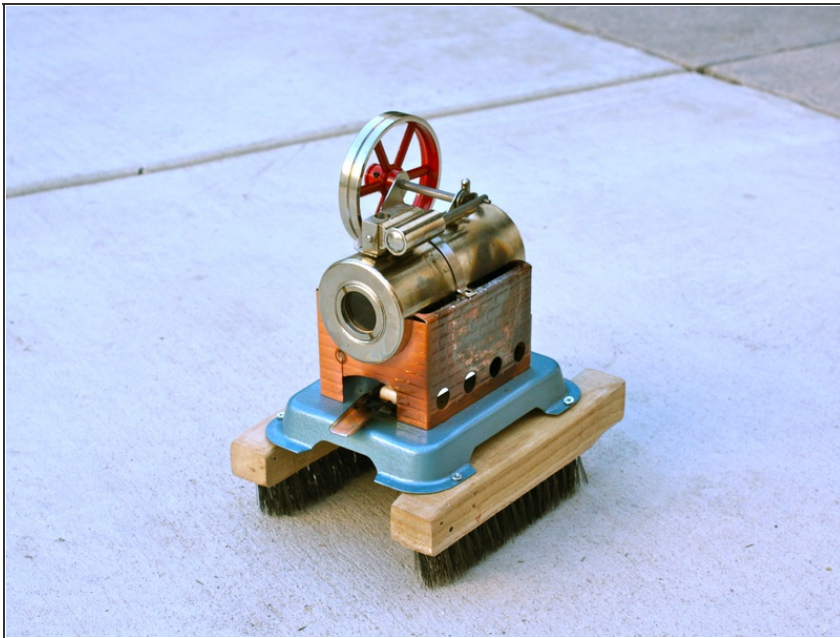
- Unscrew the safety valve and use the funnel to half-fill the boiler (watch the port window) with distilled water.
- Screw the safety valve back in place.

Step 9



- Place two dry fuel tablets in the tray, light them on fire, then slide it under the boiler.

Step 10



- Set the BoilerBot down on a smooth surface, such as a sidewalk, driveway, or miniature alternate universe battlefield.
- Once sufficient steam pressure has built, give the flywheel a spin to start the engine.
- The BoilerBot will drive around, until it runs out of fuel or water. What steamy, robotic fun!

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